

Operating Instructions

FM/AM DIGITAL SYNTHESIZER TUNER

F-401

F-401L

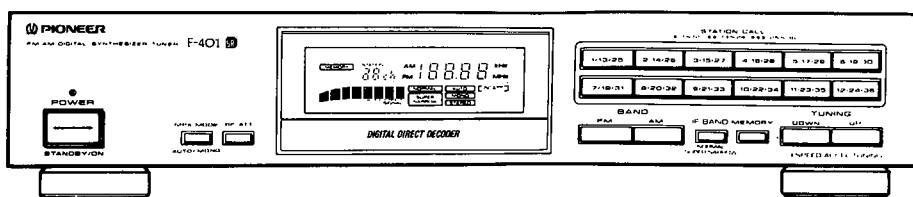


Illustration shows model F-401.

Thank you for buying this Pioneer product.

Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

LINE VOLTAGE SELECTOR SWITCH

Only multi-voltage models are provided with this switch. U.K. models are not provided with this switch.

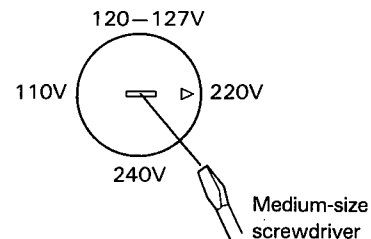
Mains voltage in Saudi Arabia are 127 V and 220 V only.

Never use this model with a 110 V setting in Saudi Arabia.

The line voltage selector switch is on the rear panel. Before your model is shipped from the factory, this switch is set to the power requirements of the destination. Check that it is set properly before plugging the power cord into the AC wall socket. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows.

1. Use a medium-size screwdriver.
2. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.

Set the voltage selector for the voltage in your area.



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The Art of Entertainment

IMPORTANT



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last (make sure that the power switch is off.)

FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Do not connect either wire to the earth terminal of a three pin plug.

Equipment sold in the U.K. is not supplied with a power plug.

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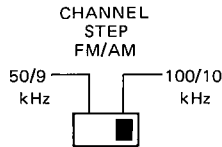
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FM/AM CHANNEL STEP SWITCH

Only multi-voltage models are provided with this switch.
U.K. models are not provided with this switch.

FM/AM CHANNEL STEP switch is located on the rear panel of the digital synthesizer tuner. Before the tuner leaves the factory, this switch is set to the channel allotment plan of the area in which the tuner is sold. When TUNING button is given a single push, the frequency display will change in following unit.



[100 kHz/10 kHz] position:

Set to this position for areas with FM reception step of 100 kHz and AM 10 kHz.

[50 kHz/9 kHz] position:

Set to this position for areas with FM reception step of 50 kHz and AM 9 kHz.

NOTE:

When unsure about the channel allocation for your area, consult your dealer for correct information.

The channel step will not change if CHANNEL STEP switch is operated with the power ON.

After operating CHANNEL STEP switch, if you turn POWER switch OFF and then ON again, the channel step will switch over.

If you operate CHANNEL STEP switch, the stations that were memorized before the switch was operated will be erased.

INSTALLATION

LOCATION

Install the tuner in a well ventilated location where it will not be exposed to high temperature or humidity.

Do not install the tuner in a location which is exposed to direct rays of the sun, or near to hot appliances or radiators. Excessive heat can adversely affect the cabinet and internal components. Installation of the tuner in a damp or dusty environment may result in malfunction or accident. (Also avoid installation near cookers etc., where the tuner may be exposed to smoke from oil, steam or heat.)



POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause fire or give you an electrical shock. Check the power cord once in a while. When you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.

MAINTENANCE OF EXTERNAL SURFACES

- Use a polishing cloth or dry cloth to wipe off dust and dirt.
- When the surfaces are very dirty, wipe with a soft cloth dipped in some neutral cleanser diluted five or six times with water and wrung out well, then wipe again with a dry cloth. Do not use furniture wax or cleaners.
- Never use thinners, benzine, insecticide sprays and other chemicals on or near this unit, since these will corrode the surfaces.

FEATURES

- FM IF bandwidth switchable between "normal" and "super narrow" for FM.
- D.D.D. (Digital Direct Decoder), for a high SN ratio.
- A built-in attenuator (RF ATT) can be switched on or off for proper reception of strong broadcast stations.
- Random 36-stations Presetting
A total of 36 FM and AM stations can be preset into the memory circuit.
- Even the slightest deterioration of sound quality is avoided by the thorough use of anti-vibration parts.
 - Honeycomb chassis.
 - Large insulator.
 - All parts are carefully selected to achieve high sound quality.

CHECKING OUT THE ACCESSORIES

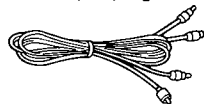
① AM loop antenna



② FM T-type antenna



③ Connecting cord with pin plugs

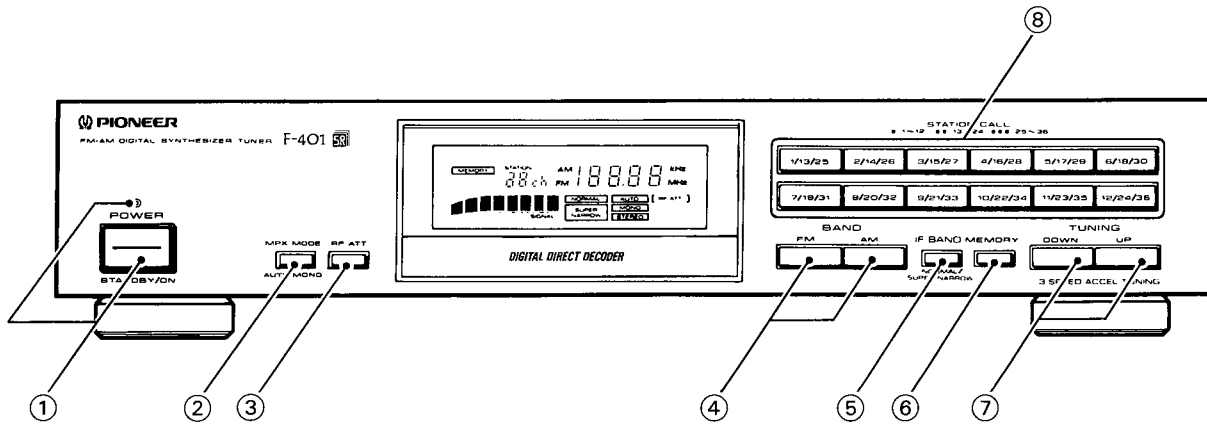


④ Control cord



FRONT PANEL FACILITIES

Illustration shows model F-401.



① POWER (STANDBY/ON) switch/indicator

When the power is on, indicator lights.

ON When set to ON position, power is supplied and the unit becomes operational.

STANDBY .. When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

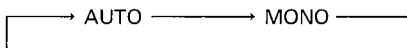
Disconnect the power cord from the power outlet when you do not plan to use the unit for a long period of time.

NOTE:

- The memory will be backed up so long as the power cord is not unplugged.
- If the power cord is unplugged, the memory will be retained for several days.

② MPX (multiplex) MODE (AUTO/MONO) button

Mode changes as follows each time this button is pressed:



This button does not affect AM reception.

AUTO:

Depending on the broadcast station, STEREO or MONO is automatically selected.

AUTO indicator lights up.

NOTE:

When the signal level is too weak for reception, sound output is automatically muted.

MONO:

To receive stereo broadcasts in monaural.

MONO indicator lights up.

NOTE:

This button's status is preset for each station in station memory.

③ RF ATT button

Set this button to ON when receiving strong FM signals (nearby stations) to reduce sound distortion ([RF ATT] indicator lights). Normally, this button should be set to OFF.

NOTE:

This button's status is preset for each station in station memory.

④ BAND (FM/AM) selector buttons

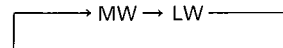
FM:

Press to receive FM broadcasts.

AM:

Press to receive AM broadcasts.

- On the U.K. model, each time you press this button, the band switches in the following way.



⑤ IF BAND (NORMAL/SUPER NARROW) button

Each time this button is pressed the bandwidth of the IF circuit switches between "normal" and "super narrow" for the FM band.

The selected bandwidth is displayed as follows:

The **NORMAL** or **SUPER NARROW** indicator lights up.

Set to SUPER NARROW in case of interference from other stations.

NOTE:

This button's status is preset for each station in station memory.

⑥ MEMORY button

Press to memorize preset stations. The **MEMORY** indicator will remain lit for several seconds. Press the desired STATION CALL buttons to memorize it during this period.

See page 10 for operational details.

⑦ TUNING UP/DOWN buttons

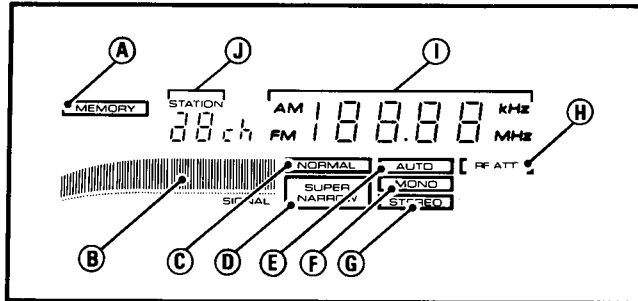
Use these buttons to tune in broadcasting stations. Press UP to receive a station whose frequency is higher than the displayed frequency, and DOWN to tune into a lower frequency station.

⑧ STATION CALL buttons

Use these buttons to preset stations and to receive already preset stations.

FRONT PANEL FACILITIES

OPERATING DISPLAY



A MEMORY indicator

Lights for a several seconds when MEMORY button is pressed.

B SIGNAL indicator

C NORMAL indicator

Stays lit while IF BAND button is set to NORMAL.

D SUPER NARROW indicator

Stays lit while IF BAND button is set to SUPER NARROW.

E AUTO indicator

Stays lit while MPX MODE button is set to AUTO.

F MONO indicator

Stays lit while MPX MODE button is set to MONO.

G STEREO indicator

Lights up when a stereo broadcast is received.
(The indicator does not light when the MPX MODE button is set to MONO.)

H RF ATT indicator

Stays lit while RF ATT button is on.

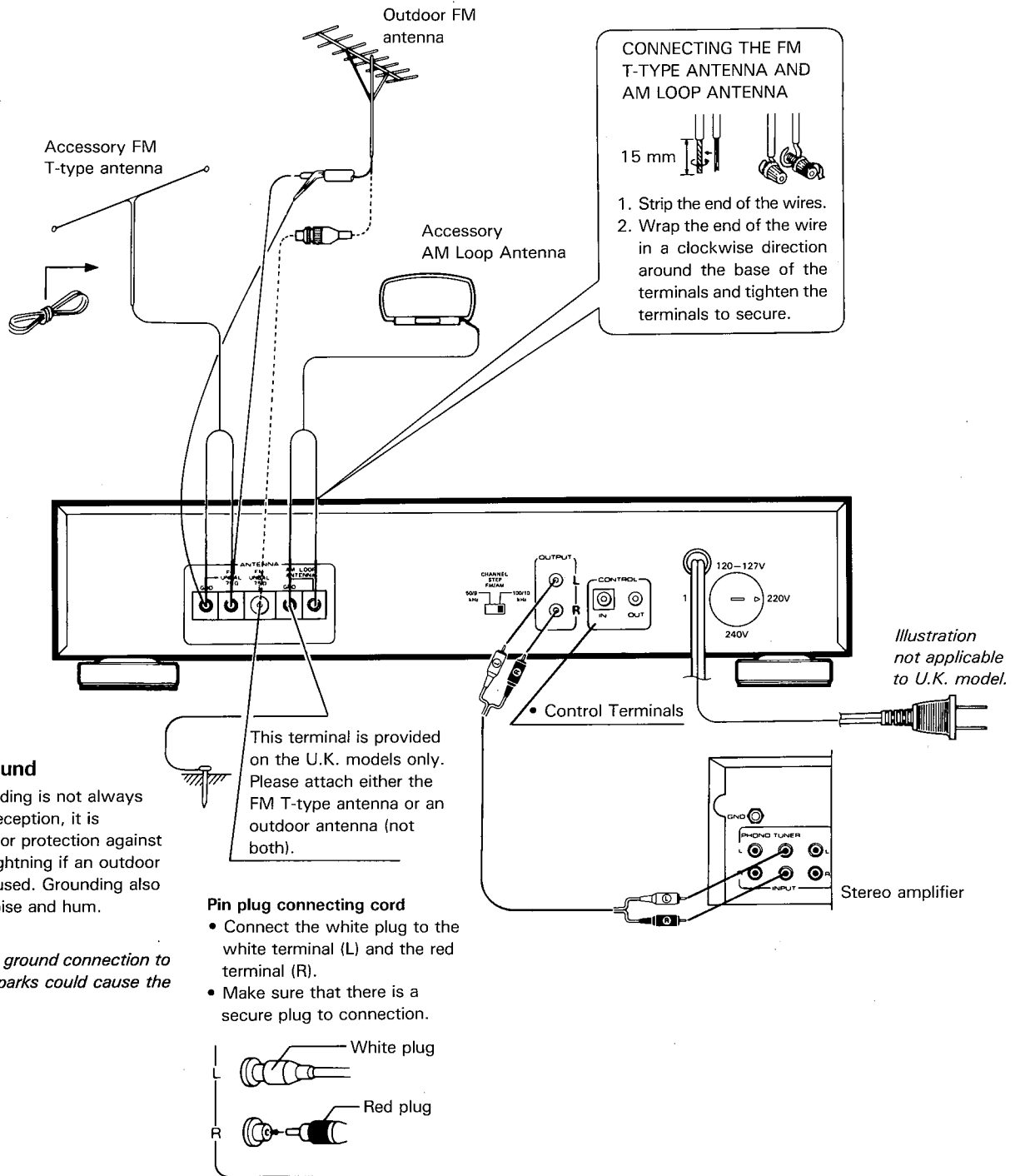
I Frequency indicator

Shows reception band and frequency.

J STATION indicator

When STATION CALL buttons are pressed, it will show the corresponding channel number.

CONNECTIONS



CONNECTING THE FM T-TYPE ANTENNA AND AM LOOP ANTENNA

15 mm

1. Strip the end of the wires.
2. Wrap the end of the wire in a clockwise direction around the base of the terminals and tighten the terminals to secure.

Antenna ground

Although grounding is not always necessary for reception, it is recommended for protection against damage from lightning if an outdoor FM antenna is used. Grounding also helps reduce noise and hum.

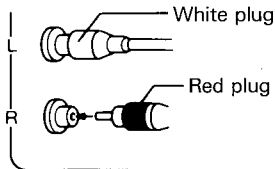
DANGER:

Never make the ground connection to a gas pipe as sparks could cause the gas to ignite.

This terminal is provided on the U.K. models only. Please attach either the FM T-type antenna or an outdoor antenna (not both).

Pin plug connecting cord

- Connect the white plug to the white terminal (L) and the red terminal (R).
- Make sure that there is a secure plug to connection.



• CONTROL terminals

When using together with Pioneer component with mark, connect the control IN terminal on the rear panel of the tuner to the CONTROL OUT terminal on the component. This will enable the tuner to be controlled from a distance, with the remote control unit supplied with the component.

When this feature is not used, connection is not necessary.

- For instructions regarding connection and operation, please refer to the operating instruction manual for your stereo component.

Illustration not applicable to U.K. model.

ANTENNA CONNECTIONS

Radio reception is not possible unless the antenna is properly connected.

The strength of broadcast signals varies from one area to another. Signal propagation is especially poor in metropolitan areas, where there are many tall buildings, and also in mountainous areas. Proper antenna installation is vital to good reception.

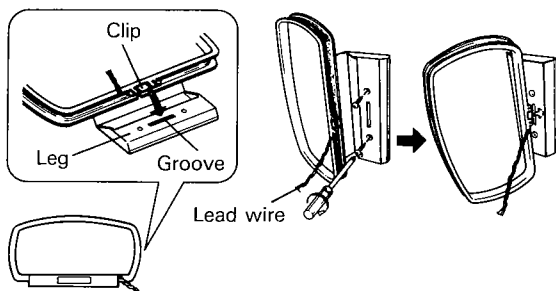
AM ANTENNA

The AM loop antenna supplied with the tuner should be connected to the AM antenna terminals. The antenna should be placed at a distance from the tuner, and should not be allowed to touch metallic objects. Avoid placing it near CD players, personal computers, television sets, and other devices generating radio frequencies.

Setting Up the AM Antenna

- Insert the clip on the bottom of the antenna into the groove on the leg.
- To permanently fix the antenna, screw the leg to a wall or post before assembling (fixing the antenna in the direction that gives the best reception).
- Place the antenna on a level surface and rotate it to locate the orientation that yields the best reception.

AM Loop Antenna Set-up



AM Loop Antenna Connection

The accessory AM loop antenna must be connected to ensure proper reception.



External AM antenna

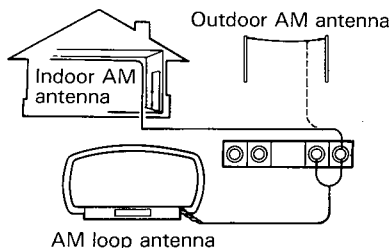
Indoor AM antenna

Provide a vinyl-coated wire (5 to 6 meters long). Secure one end to the AM terminal and the other end to a wall or other high location.

Outdoor AM antenna

If reception is still poor even when a lead antenna has been stretched out indoors, stretch out a vinyl-coated wire and secure it outdoors.

Connecting the external AM antenna



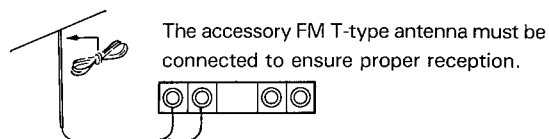
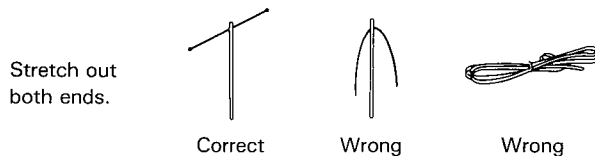
NOTE:

Do not detach the AM loop antenna when using the external AM antenna.

FM ANTENNA

FM T-type Antenna Attachment

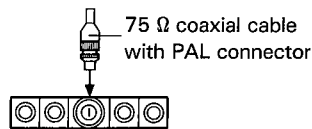
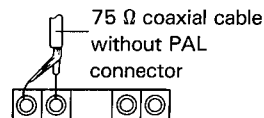
Connect the accessory FM T-type antenna to the FM terminals. Stretch the antenna out to its full length, and affix it to a wall, etc.



External FM antenna installation

Use an external antenna when the signals from the station are weak and cannot be picked up by the accessory T-type FM antenna, or when the sound heard is accompanied by large amounts of noise. There are two ways of connecting the external FM antenna to the ANTENNA terminals: with 300 Ω feeder wire, or with a 75 Ω coaxial cable. It is recommended that you use the 75 Ω coaxial cable, so that the effects of extraneous noise are reduced to a minimum.

When the connecting cable is a 75 Ω coaxial cable



This terminal is provided on the U.K. models.

LISTENING TO BROADCASTS

Listening to FM or AM (MW or LW) broadcasts.

1. Turn **POWER** switch **ON**.

2. Depress the desired **BAND** selector button.

- For FM broadcasts, the "FM" and "MHz" indicators will light.

FM 106.00 MHz

- For AM (MW or LW) broadcasts, the "AM" and "kHz" indicators will light.

AM 1000 kHz

3. Press **TUNING UP/DOWN** buttons.
(3 — **SPEED ACCEL TUNING**)

• One step tuning

Press **TUNING UP** or **DOWN** and release quickly. The frequency will change by one step each time the button is pressed. Press as many times as necessary to tune in the desired station. Steps change in the following way.

U.K. model: FM: 50 kHz, AM: (MW) 9 kHz, (LW) 1 kHz

Multi-voltage models:

Switching the FM/AM CHANNEL STEP switch on the rear panel causes steps to change in the following.

[100 kHz/10 kHz] position FM: 100 kHz, AM: 10 kHz
[50 kHz/9 kHz] position FM: 50 kHz, AM: 9 kHz

• Auto tuning

Press **TUNING UP/DOWN** buttons until the frequency starts to change, then release it. The tuner will automatically search for a broadcasting station and stop when one is found. To search for another station, press again.

• High speed manual tuning

Keep **TUNING UP** or **DOWN** pressed. The frequency changes continuously, and stops when the button is released.

NOTE:

On the U.K. model, auto tuning is not possible when LW is selected.

4. To receive another station in the same band, repeat step 3. To receive a station in the other band, repeat steps 2 and 3.

5. For FM broadcasts, use **IF BAND** button to select the IF bandwidth, and for FM broadcasts, use **MPX MODE** button to select the **AUTO** or **MONO** mode, based on reception conditions.

Note on Auto Tuning

- Because of high sensitivity of this unit, it may automatically stop even at very weak overseas stations. The same can happen with aggregate radio noise emitted in cities.
- During reception of an AM broadcast, if it frequently stops when presetting stations with auto tuning, auto tuning of only strong local stations is possible by changing the direction of the loop antenna or folding it down. After presetting, move the loop antenna back to the position where it is pointing in the best direction as before.
- Preset extremely weak stations with manual tuning.

The Signal Indicator

When no segment of the signal indicator is lit, reception is not possible even if the tuning frequency is correct. This is because the antenna terminal input is too weak. Check whether the antenna cable is firmly connected. If it is, consult your nearest dealer and install an outdoor antenna.

LISTENING TO BROADCASTS

Presetting FM and AM (MW or LW) Stations

You can preset 12 FM and AM (MW or LW) stations in Mode 1, 12 stations in Mode 2, and 12 stations in Mode 3 which has a total of 36 stations.

Mode 1: 1 – 12
 Mode 2: 13 – 24
 Mode 3: 25 – 36

1. Turn POWER switch on.

2. Use BAND selector buttons to select either FM or AM (MW or LW) reception band.

- For FM broadcasts, the "FM" and "MHz" indicators will light.
- For AM (MW or LW) broadcasts, the "AM" and "kHz" indicators will light.

3. Tune in the desired station with TUNING UP/DOWN buttons.

The present mode selected with IF BAND button, MPX MODE button, and RF ATT button will be memorized together with the station's frequency.

4. Press MEMORY button.

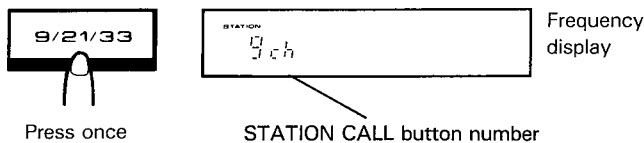
- The MEMORY indicator will light for a few seconds.
- Memory storage is not possible once the indicator goes off. In this case, press the MEMORY button again.
- If the button is pressed again with the indicator lighting, the memory function will be canceled.

5. While the memory indicator is ON, press the desired STATION CALL button.

While the indicator is lit, press the button corresponding to the station that you wish to preset or re-preset.

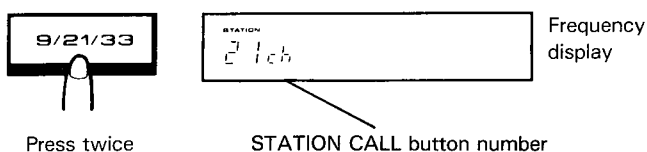
When presetting a station to Mode 1 (e.g. presetting a station to No. 9, for example):

By pressing the STATION CALL button once, the station will be preset to Mode 1.



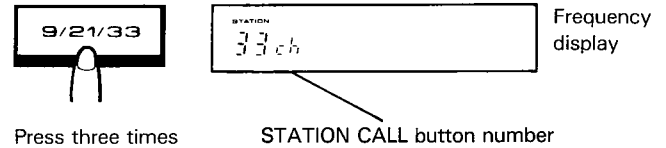
When presetting a station to Mode 2 (e.g. memorizing a station to No. 21, for example):

By pressing the STATION CALL button twice, the station will be preset to Mode 2.



When memorizing a station to Mode 3. (e.g. memorizing a station to No. 33, for example):

By pressing the STATION CALL button three times, the station will be preset to Mode 3.



After you press STATION CALL buttons, the MEMORY indicator will flash for a few seconds, then the station will be memorized. If you press any button other than the buttons IF BAND, MPX MODE, and RF ATT while the MEMORY indicator is flashing, the station will not be memorized.

- The selected preset channel will be displayed, and the MEMORY indicator will go off. This completes the preset procedure.
- Write down the preset station in STATION CALL buttons "Memo" (Page 12) and use it as a reminder.

Notes on Preset

- If a station is memorized with STATION CALL buttons at a position where a station was already memorized, the previous contents are erased and the new data is stored in memory.
- If preset stations get erased, repeat the preset procedure from the beginning.

Preset station tuning

Press a STATION CALL button into which the desired station has been memorized.

- To listen to a Mode 1 station, press the button once, to listen to one in Mode 2, press it twice, and to listen one in Mode 3, press it three times.
- By pressing STATION CALL buttons, the button number will be displayed, then the frequency will be displayed.

NOTE:

If, for example, you wish to receive the station memorized in STATION CALL button "13" when listening to the station memorized in button "9," press button "1/13/25" twice.

In this way, simple and accurate reception of any desired station is possible.

NOTE:

- The contents of STATION CALL buttons will be retained for several days, even if the tuner's power cord is unplugged.
- If a preset station has been erased, re-preset it.

Last station memory

- When POWER switch is pressed to turn power on, the last station received before the power was turned off will be received again.
- When the power is ON, if one of the BAND selector buttons is pressed, the last station received on that band will be received again.

TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used. If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Symptom	Cause	Remedy
No power.	<ul style="list-style-type: none"> • Has the power cord been disconnected? 	<ul style="list-style-type: none"> • Reconnect the power cord.
No sound.	<ul style="list-style-type: none"> • Have any of the output cords been disconnected or incorrectly connected? • Has the antenna been disconnected or is the connection loose? • Was the power cord unplugged for several days? (Station memory has been lost.) • Are the signals weak and reception poor? 	<ul style="list-style-type: none"> • Connect them properly to the TUNER terminals on the amplifier. • Connect the antenna properly. • Memorize the stations once again. • Set the MPX MODE button to MONO. (The broadcast will be received in monaural).
Noise.	<ul style="list-style-type: none"> • Is the station properly tuned in to the correct frequency? • Has the antenna been disconnected or is the connection loose? 	<ul style="list-style-type: none"> • Tune the station in correctly. • Connect the antenna properly.
Sound distortion.	<p>[On the FM band]</p> <ul style="list-style-type: none"> • The T-type FM antenna has not been extended, or it is not properly orientated. • Are the signals weak and reception poor? <p>• Even though the signal is weak, the RF ATT is ON.</p> <p>• Static from other appliances (particularly automobiles) or multipath reflection (radio waves reflected off mountains and tall buildings, hence not received directly.)</p> <p>[On the AM (MW or LW) band]</p> <ul style="list-style-type: none"> • Poor positioning of AM loop antenna? • The supplied AM loop antenna is in contact with the unit. • Are the signals weak and reception poor? • Noise from other electrical appliances (fluorescent light/motors). 	<ul style="list-style-type: none"> • Extended both ends fully, and face it in the direction giving best reception. • Replace the supplied T-type FM antenna for an outdoor antenna. • Set the MPX MODE button to MONO. (The broadcast will be received in monaural). • Set the RF ATT to OFF. • Try changing the antenna installation place. If you are using an outdoor antenna, move it away from the street. • Change antenna direction, and set it in the position giving best reception. • Move the loop antenna away from the unit. • Install and connect an external AM antenna and ground the unit. • Stop using the noise-generating equipment, or move it away.
FM stereo broadcasts not received in stereo.	<ul style="list-style-type: none"> • Antenna input is insufficient because of weak broadcast signals. • The unit is not correctly tuned to the frequency of the broadcast station. • MPX MODE button is set to MONO. 	<ul style="list-style-type: none"> • Use a multi-element FM antenna. • Tune the correct frequency in. • Set MPX MODE button to AUTO.

Abnormal functioning of this unit may be caused by lightning, static electricity, or other external interference. To restore normal operation, turn the power off and then on again, or unplug the AC power cord and then plug it in again.

SPECIFICATIONS

FM Tuner Section

Frequency range 87.5 MHz to 108 MHz
 Usable Sensitivity
 NORMAL Mono: 12.1 dBf, IHF (1.1 μ V/75 Ω)
 50 dB Quieting Sensitivity
 NORMAL Mono: 16.2 dBf, IHF (1.8 μ V/75 Ω)
 Stereo: 36.2 dBf, IHF (17.7 μ V/75 Ω)
 Sensitivity (DIN)
 NORMAL Mono: 0.9 μ V/75 Ω
 Stereo: 28 μ V/75 Ω
 Signal-to-Noise Ratio Mono: 83 dB (at 80 dBf)
 Stereo: 78 dB (at 80 dBf)
 Distortion (at 80 dBf)
 NORMAL Mono: 0.2 % (1 kHz)
 Stereo: 0.3 % (1 kHz)
 Alternate Channel Selectivity
 NORMAL 70 dB (400 kHz)
 SUPER NARROW 65 dB (300 kHz)
 Stereo Separation 50 dB (1 kHz)
 40 dB (20 Hz to 10 kHz)
 Frequency Response \pm 1 dB (20 Hz to 15 kHz)
 Image Response Ratio 50 dB
 IF Response Ratio 90 dB
 AM Suppression Ratio 60 dB
 Spurious Response Ratio 70 dB
 Subcarrier Product Ratio 55 dB
 Muting Threshold 23.2 dBf (4 μ V/75 Ω)
 Antenna Input 75 Ω unbalanced

AM (MW) Tuner Section

Frequency range 531 kHz to 1,602 kHz (Step 9 kHz)
 530 kHz to 1,700 kHz (Step 10 kHz)
 Sensitivity (IHF, Loop antenna) 300 μ V/m
 Selectivity 30 dB
 Signal-to-Noise Ratio 50 dB

Image Response Ratio 40 dB
 IF Response Ratio 50 dB
 Antenna Loop Antenna

LW Tuner Section (F-401L only)

Frequency range 153 kHz to 281 kHz
 Sensitivity (IHF, Loop antenna) 1,000 μ V/m
 Antenna Loop Antenna

Audio Section

Output (Level/Impedance)
 FM (100% MOD) 650 mV/0.9 k Ω
 AM (30% MOD) 150 mV/0.9 k Ω

Miscellaneous

Power Requirements
 U.K model a.c. 240 Volts~, 50/60 Hz
 Multi-voltage models AC 110/120-127/220/240 V
 (switchable), 50/60 Hz
 Power Consumption 15 W
 Dimensions 420 (W) x 86 (H) x 316 (D) mm
 Weight (without package) 3.5 kg

Furnished Parts

FM T-type Antenna 1
 AM Loop Antenna 1
 Connecting Cord with Pin Plugs 1
 Operating Instructions 1
 Control cord 1

NOTE:

Specifications and design subject to possible modification without notice due to improvements.

STATION CALL button "memo"

It is recommended that you make a note of the preset stations.

S.C. button	•	1	2	3	4	5	6	7	8	9	10	11	12
Name of broadcast station													
Frequency													
S.C. button	••	13	14	15	16	17	18	19	20	21	22	23	24
Name of broadcast station													
Frequency													
S.C. button	•••	25	26	27	28	29	30	31	32	33	34	35	36
Name of broadcast station													
Frequency													

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